

titlepage bears, not inappropriately, a woodcut of the little "chalet" at Wimereux where so much of the work recorded in its pages has been carried on. Throughout the work a number of woodcuts are intercalated in the text, whilst the general illustration of the book is provided for by the beautifully executed plates, in which many of the figures are coloured. We can only hope that MM. Giard and Bonnier may some day be able to complete their proposed monographic work, and to furnish us with an equally good account of the remaining groups of the Epicarides.

*Freshwater Sponges: a Monograph.* By EDWARD POTTS. Including 'Diagnosis of the European Spongillidæ.' By Prof. FRANZ VEJDovsky (Prague). Pp. 279, with 12 plates. (Proceedings of the Academy of Natural Sciences, Philadelphia, 1887, p. 157 *et seq.*)

OUR acquaintance with the Sponges has of late years become so extended that they can no longer be regarded by the naturalist with that indifference which characterized their study when this branch of living beings was only considered for its commercial value. The part which the Spongida have taken, and are still taking, in transforming the invisible into the visible objects of the world has latterly been so realized that to ignore it any longer in failing to direct attention to it seriously would be to disregard the existence of a vast number of living forms which we could or did not care to understand.

Thus the sponges *generally* have now become objects of much interest, for they are not only to be found in great abundance living in their natural habitats all over the world, but also, to an almost equal extent, in a fossilized condition; while lately Dr. G. J. Hinde, F.G.S., has shown that their presence has considerably changed even the composition of whole geological strata by the diffusion of silica which has become liberated from the disintegration of their spicules (Geol. Mag., Oct. 1887, p. 435 &c.).

Thus the study of the Spongida not only becomes an essential part of biology, but also one of palæontology and geology. Of course the former led to the latter, as it is mainly by the study of what is taking place at the surface of the earth at the present time that we are enabled to interpret the past.

As the products of the earth were at first sought after for their direct utility to man, so the species which served that purpose were the first to attract attention; hence the sponges of commerce have been known from great antiquity, and the most useful ones being marine, those of the sea were the first to be noticed; but when man began to find that all objects were of interest, if not of indirect utility, similar ones in freshwater accumulations claimed his notice, and thus from their intimate resemblance he learnt that sponges were to be found in fresh as well as in salt water.

Latterly many valuable contributions have been made to our knowledge of the Marine Sponges, both living and fossil; and now

we have to chronicle one of not less consequence on the Freshwater Sponges, viz. that the title of which heads this article.

Of this contrilution we must observe *in limine* that having been published in the pages of a scientific journal shows that it is not to be regarded as written for pecuniary emolument, but rather as a "labour of love," which, when backed by the enthusiasm of a *bonâ fide* naturalist (that is, an ardent desire to pursue truth and nothing but the truth), guarantees a result that in this respect is seldom equalled by one undertaken for mere pecuniary remuneration.

The 'Monograph' embraces all of any consequence that has been published up to the present day, and much more that has not been published at all, which has been obtained by Mr. Potts from the abundance of species and varieties of Freshwater Sponges existing in the neighbourhood of Philadelphia, where he would appear not to have "left a stone unturned;" while in all other instances he has possessed himself of actual specimens of the species or varieties described before putting pen to paper; so that with this determination to state nothing but what has been confirmed by his own ocular demonstration, he has produced a work that must be one of reference for a long time to come.

In quotations, where possible, Mr. Potts prefers the exact words of the author, and only where absolutely necessary substitutes condensation; while references to titles, dates, &c. accompany everything that he has stated; so that in this matter Mr. Potts has been as scrupulously careful as in his identification of the species described by means of actual specimens.

The plan of the 'Monograph,' after a list of "Contents" and a "Preface," is to begin with a few words of elementary information, "to aid those who for the first time undertake the study of Sponges," in which many useful hints will be found that were suggested to the author during his numerous excursions in search of Spongidiæ.

Then comes the translation into English of a valuable paper (originally written in German) by Prof. F. Vejdovsky, of the University of Prague, entitled "Diagnosis of the European Spongillidæ," which was drawn up at the request of Mr. Potts, as his own personal experience had been chiefly confined to North America; but although this adds greatly to the value of the work, the author tells us that he has found it most convenient to follow in his descriptions the more general classification proposed by Mr. Carter, introducing his own *new* genera, species, and varieties in their appropriate places as he proceeds.

And in this part (which forms the bulk of the 'Monograph') it is that we see what an immensity of time and labour the author must have bestowed on his subject both in compilation and actual research. Here the result of that indomitable perseverance appears which could only arise from an enthusiastic love for the work and a conscientious determination *not* to put forth anything but that which would be a safe guide to the young and inexperienced student. While in his concluding remarks he observes that in closing his 'Monograph' "it is with the consciousness that the work of classi-

fication occupies a very humble place among biological efforts and that all systems must of necessity be tentative and temporary, soon to be superseded by others, the results of a larger knowledge gained by the contemplation of a wider horizon." Thus the reader must not expect to find any more in this respect than exists in the table of "Contents" at the commencement of the 'Monograph.'

Still, after some suggestions towards the attainment of this object, the author states that "there is no more hopeful field of labour for a young naturalist seeking for 'new worlds to conquer' than that provided by the Freshwater Sponges."

Truly there is much yet to be done in spongology generally, both specifically and physiologically, towards classification before it can be put on a par with botany in these respects; but who can expect this to be otherwise with a science that is hardly a century old?

The text is accompanied by twelve plates, the numerous representations in which, with copious explanations, are, in point of exactness, in keeping with all that has preceded. They are not on the *scale* which commands attention from its great size (that is, like the figures over a caravan at a country fair), but, on the contrary, so small and unpretending as almost to require a lens for the examination of their detail, whose minuteness and truthfulness to nature will then be found to present objects of much admiration.

We congratulate Mr. Potts on having produced a 'Monograph' which is characterized throughout by modesty, ability, and, pre-eminently, practical utility.

*A Manual of Zoology for the Use of Students, with a General Introduction on the Principles of Zoology.* By HENRY ALLEYNE NICHOLSON, M.D. &c. Seventh Edition, rewritten and enlarged. 8vo. Blackwood: Edinburgh and London, 1887.

WE have had occasion so frequently to call attention to the publication of successive editions of this 'Manual,' that it would be hardly necessary to do more than to notice its reappearance, were it not that the author has made so many additions and alterations in the present edition as to place the book upon a new footing. It is, as announced on its titlepage, to a great extent rewritten, and is very considerably enlarged; and an examination of the contents will show that the author's labours have not been thrown away, as the book is a very great improvement upon its predecessors.

Of course the general treatment of the subject is the same as before, and the work is cast in the same shape; but throughout we find evidence of the influence of the most recent additions to the literature of scientific zoology. This is marked not only in the systematic portion of the book, but also in the general introduction, in which the author has touched, briefly indeed, upon all the more important points which have come to the front of late years, espe-